

Claim Amendments

Please cancel claims 4, 5 and 9. The status of all claims, and the text of all claims under consideration, are as follows:

1. (original) A Hall-current ion source apparatus comprising:

a discharge region;

means for supplying a flow of ionizable gas to said region;

an electron-emitting cathode at or near one end of said region;

an anode within said region whereon said anode has an electron-collecting surface;

a magnetic-field within said region and located between said surface and said cathode;

discharge means to generate ions from said gas and accelerate said ions out of said region;

characterized by said electron-collecting surface being contoured so as to increase the area of said surface by approximately one-half.

2. (original) A Hall-current ion source apparatus comprising:

a discharge region;

one or more apertures within said region;

means for supplying a flow of ionizable gas to said region through said one or more apertures;

an electron-emitting cathode at or near one end of said region;

an anode within said region whereon said anode has an electron-collecting surface;

a magnetic-field within said region and located between said anode and said cathode;

discharge means to generate ions from said gas and accelerate said ions out of said region;

characterized by said electron-collecting surface being contoured, wherein approximately one-third or more of the area of said electron-collecting surface cannot be reached by straight lines originating from a given point exterior of said ion source.

3. (original) A Hall-current ion source apparatus comprising:

a discharge region;

one or more apertures proximate to said region;

means for supplying a flow of ionizable gas to said region through said one or more apertures;

an electron-emitting cathode at or near one end of said region;

an anode within said region whereon said anode has an electron-collecting surface with said surface located between said apertures and said one end;

a magnetic-field within said region and located between said anode and said cathode;

discharge means to generate ions from said gas and accelerate said ions out of said region;

characterized by said electron-collecting surface being contoured, wherein approximately one-third or more of the area of said electron-collecting surface cannot be reached by straight lines originating from a given point exterior of said ion source.

4. (canceled)

5. (canceled)

6.(original) A method for making a Hall-current ion source including:

providing a discharge region;

providing a means for supplying a flow of ionizable gas to said region;

providing an electron-emitting cathode at or near one end of said region;

providing an anode within said region with said anode having an electron-collecting surface thereon;

providing a magnetic-field within said region and located between said anode and said cathode;

providing a discharge means to generate ions from said gas and accelerate said ions out of said region; and

providing contours in said electron-collecting surface wherein said contours increase the area of said surface by approximately one-half or more.

7.(original) A method for making a Hall-current ion source including:

providing a discharge region;

providing a means for supplying a flow of ionizable gas to said region;

providing an electron-emitting cathode at or near one end of said region;

providing an anode within said region with said anode having an electron-collecting surface thereon;

providing a magnetic-field within said region and located between said anode and said cathode;

providing a discharge means to generate ions from said gas and accelerate said ions out of said region; and

contouring said electron-collecting surface so that approximately one-third or more of the area of said electron-collecting surface cannot be reached by straight lines originating from a given point exterior of said ion source.

8.(original) A method for making a Hall-current ion source including:

providing a discharge region;

providing one or more apertures proximate to said discharge region;

providing a means for supplying a flow of ionizable gas to said region through said one or more apertures;

providing an electron-emitting cathode at or near one end of said region;

providing an anode within said region with said anode having an electron-collecting surface thereon;

locating said surface between said apertures and said one end;

providing a magnetic-field within said region and located between said anode and said cathode;

providing a discharge means to generate ions from said gas and accelerate said ions out of said region; and

contouring said electron-collecting surface so that approximately one-third or more of the area of said electron-collecting surface cannot be reached by straight lines originating from a point exterior of said ion source.

9. (canceled).